Washington Park Arboretum Bulletin

Published by the Arboretum Foundation

Fall 2001

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Published quarterly by the Arboretum Foundation
for the Washington Park Arboretum

Washington Park Arboretum

The Arboretum is a 230-acre living museum displaying internationally renowned collections of oaks, conifers, camellias, Japanese maples, hollies and a profusion of woody plants from the Pacific Northwest and around the world. Aesthetic enjoyment gracefully co-exists with science in this spectacular urban green space on the shores of Lake Washington. Visitors come to learn, explore, relax or reflect in Seattle's largest public garden.

The Washington Park Arboretum is managed cooperatively by the University of Washington and Seattle Parks and Recreation; the Arboretum Foundation is its major support organization.

Graham Visitors Center

Open 10 AM—4 PM daily;
holidays, NOON—4 PM.
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Arboretum Foundation

The Arboretum Foundation is a nonprofit organization established in 1935 to ensure stewardship for the Washington Park Arboretum, and to provide horticultural leadership for the region. The Foundation provides funding and volunteer support for the maintenance, development and renovation of Arboretum gardens and collections and for education programs. Volunteers operate the gift shop, conduct major fundraising events, and further their gardening knowledge through study groups and hands-on work in the greenhouse or grounds.

2300 Arboretum Drive East, Seattle, WA 98112
206-325-4510 voice / 206-325-8893 fax
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Office hours: 8:30 AM—4:30 PM weekdays
Gift shop hours: 10 AM—4 PM daily

University of Washington

The University of Washington manages the Arboretum's collections, horticultural programs, facilities, public information & education programs through its Center for Urban Horticulture.

206-543-8800 voice / 206-325-8893 fax
Office hours: 8 AM—5 PM weekdays
http://depts.washington.edu/wpa

Washington Park Arboretum
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Seattle Parks and Recreation

The City of Seattle owns the Arboretum's land, including the buildings. Seattle Parks and Recreation is responsible for routine maintenance within the Arboretum and manages and operates the Japanese Garden.

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Washington Park Arboretum *Bulletin*

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Contents

ABOVE: This Foster Island photograph of a man and a boat was taken in 1913. The photographer is unknown; in fact, the man in the photograph is also hard to locate.

ON THE COVER: The gold of autumn leaves and the bark of *Acer macrophyllum*, the big leaf maple, which is native from British Columbia to Southern California. In the Arboretum, a fastigiate variety, 'Seattle Sentinel,' may be found at grid coordinates 18-5W.

The Road Ahead

Approval of Washington Park Arboretum's master plan marks a leap forward in the history and progress of this magnificent living museum and community resource.

While the planning process was lengthy and challenging, it nonetheless strengthened the Arboretum's management partnership and reinvigorated its constituency—the widespread community of volunteers, members, neighbors, students, gardeners, visitors and others who treasure the Arboretum and support it in many ways. Most importantly, the master plan provides a clear roadmap for restoration and expansion of the Arboretum's plant collections, as well as markedly improved recreation and education opportunities.

Now begins a new era for the Arboretum and the Arboretum Foundation. The phased implementation of the master plan is under discussion. Such work will take many months of preparation and years to complete. And with that, we have not only the current programs and care of the Arboretum to support; there is the added crucial task of raising funds to support the implementation of the master plan.

But even while the implementation is under development, the Foundation will continue (and strengthen) our traditional duties of annual fundraising, membership, volunteer services and public relations.

As always, the Arboretum Foundation is pleased to present the *Bulletin* as a benefit of membership, and we hope you enjoy its content, tailored especially for friends of the Arboretum and horticultural enthusiasts. We look forward to, and appreciate, your continued participation and interest during this exciting time.

Deborah Andrews

Deborah Andrews, Executive Director,
Arboretum Foundation

Autumn reflections in the Arboretum's Duck Pond at sunset.
Photo by Eric Hoffman, an artist and garden designer, who may be reached at eahoff@earthlink.net.

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All contributions are tax-deductible to the extent allowed by law. For information about membership, additional gift and commemorative opportunities, please call (206) 325-4510.

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PHOTOS BY RICHARD HARTLAGE

COMBINATIONS UNLOCKED

The Whys & Wherefores of Favorite Plant Combinations

1: Indispensable Red

BY RICHARD HARTLAGE

Gardeners either love red or hate it. I must say, though, that I find red nearly indispensable. Believe it or not, I use red most often in quiet green gardens. Red and green are opposite each other on the

ABOVE: The burnished red leaves of *Acer japonicum* 'Aconitifolium' with a prostrate blue spruce, hair grass (*Nassella tenuissima*) and two spiky, potted *Cordyline australis* 'Albertii.'

LEFT: The stoneware pot, containing *Phormium* 'Color Guard,' is flecked with the scarlet of *Geum* 'Red Wings.' Surrounding it are three gold-brushed junipers, the spires of *Echium pininana*, and the varigated spikes of *Agave americana* 'Mediopicta.'

color wheel, so they intensify one another. Since green is the primary color of all gardens in the temperate world, red can lift a visually flat scene into the sublime. In fact, if used judiciously, a little scarlet or crimson can go a long way toward stunning.

"In fact, if used judiciously, a little scarlet or crimson can go a long way toward stunning."

Serendipity is a wonderful force in the garden. I am not generally fond of geums; that is not to say that there aren't a few good ones. They bloom in late spring; they flower for too short a time, and are rather uninteresting in foliage. With flowers in a range of reds, oranges and yellows, they tend towards rather harsh hues. The cultivars I like best have more subtle variations of hue. *Geum* 'Coppertone,' selected by Beth Chatto, is my favorite; it is dwarf, to ten inches or so, and the most delicate apricot. We lost ours here at The Miller Botanical Garden to some brutish construction work last autumn. Another geum I like is *G.* 'Red Wings,' which we grew from seed purchased from Plant World, an English mail-order seed supplier. It is an intense scarlet, fabulous in small doses.

Anticipating Serendipity

Two years ago, Greg Graves, Head Gardener at the Miller Garden, placed a large, stoneware pot in the bed where *G.* 'Red Wings' was growing. He planted the urn with the crimson *Phormium* 'Color Guard,' and when the geum flowered, its scarlet flowers, against the crimson, striped swords, were striking. Fleeting as this combination of plants is—the geum only blooms for about two weeks, for the last three years the *Phormium* 'Color Guard' has gone back into the same spot so that we can enjoy the association. The combination works well in its setting, too, with the golden spires of *Juniperus communis* 'Gold Cone' in the distance and the dusky mauve of *Erysimum* 'Wenlock Beauty' which flowers at the same time.

Indispensable Autumn Color

The most important display of color at The Miller Botanical Garden is in the autumn with gloriously colored, deciduous trees and shrubs. Any species in the witch hazel family is worth having; deciduous barberries have great fall color, and Japanese maples are a must. *Acer palmatum* 'Osakazuki' is the most vibrant for crimson foliage in autumn, but my favorite is *Acer japonicum* 'Aconitifolium'. This handsome tree, with beautiful, coarse, hand-shaped leaves, is easy to grow and matures at 15 to 20 feet, the perfect size for an urban garden. It is a little looser in habit than most Japanese maples, making it easy to grow other plants under it. It begins to show signs of color before every other tree in the garden; in fact, its leaves become burnished with rusty red in late August. But it is spectacular in late October when the foliage is crimson brushed in plum purples.

My favortite combination is near the visitor parking area where *A. j.* 'Aconitifolium' is underplanted with a prostrate Colorado blue spruce and hair grass, *Nassella tenuissima (*syn. *Stipa tenuissima).* In fact, I admire the color and texture of this scene so much that it has become the logo for our garden, and a detail of the 'Aconitifolium' leaf is on all our stationery.

Red flowers or foliage against a background of green make for stunning effects of simple drama that should not be discounted in the garden. If you are not yet a fan of red, try a little. That's all it takes. I think you will be pleasantly surprised.

Richard Hartlage is the Director/Curator of The Elisabeth C. Miller Botanical Garden in north Seattle. His first book, Bold Visions for the Garden, *has just been published by Fulcrum Press.*

HORT 101

Test your horticultural vocabulary with these terms used in this issue!

CORYMB, (kôr´ imb), noun

A flowering shoot in which the flowers form a flat-topped or convex cluster.

FASTIGIATE, (fa stij´ē it, -āt), adjective

Erect and parallel, describing the branches of some trees, such as the Lombardy poplar (*Populus nigra* 'Italica') and *Acer macrophyllum* 'Seattle Sentinel.'

FLEDGE, (flej), v. t.

To bring up a young bird until it is ready to fly. Of a young bird, to acquire the feathers necessary for flight. **FLEDGLING, noun:** A young bird that has recently fledged.

FREDERICK LAW OLMSTED, 1822-1903

Now considered the father of American landscape architecture, Olmsted designed New York City's Central Park and significant landscapes in many US cities. His firm included his sons, who did the original design for Seattle's parks system, and James Dawson, who drew the first plan of Washington Park Arboretum for $3,000.

INDEX SEMINUM

Index Seminum, an international program for the exchange of seeds among arboreta and botanic gardens, is an important source of new introductions for the Arboretum. Each participant offers a catalog of seeds. Volunteers gather, clean, package and mail seed requested from Washington Park Arboretum.

LINEARLOBUM, (lin´ ē ər lō´ bum), adj.

Describing a horticultural, rather than taxonomic, group of Japanese maples characterized by very long, slender leaf lobes.

MORPHOLOGICAL VARIATION

The natural variation of form and/or structure found between individual plants within a genus or species.

NORTH AMERICAN PLANT COLLECTIONS CONSORTIUM

A network of botanical institutions dedicated to plant conservation through the establishment and maintenance of priority plant collections. Most collections are taxonomically based. The Consortium is supported by the American Association of Botanical Gardens and Arboreta.

TAXON, (tak´ son) noun, pl. TAXA, (tak´ sə)

A group of organisms, such as a genus or species, that is defined by a set of shared characteristics. **TAXONOMY:** The technique or science of classifying these groups.

TRIFOLIATE, (trī fō´ lē it, -āt´), adj.

Describing a leaf composed of three leaflets.

TURBINATE, (tûr´ bə nit, -nāt´), adj.

Describing seeds or capsules arranged in a whorled or spiraled pattern, like a top or inverted cone.

TUSSOCK, (tus´ ək), noun

A tuft or clump of grass.

Above: Crow nests are bulky affairs, often nearly 2 feet in diameter. The bulky, seemingly untidy outter sticks, however, surround a finely woven inner lining of rootlets and stripped bark. The blueish-green, speckled eggs rest warmly and softly in this setting. Photo by Roarke Donnelly.

Below: Nestling crows ready to fledge. Four nestlings are crowded into this nest near a parking garage on the University of Washington campus. Their blue eyes, pink mouths, and downy appearance are typical of fledgling crows. Photo by Roarke Donnelly.

Seattle's Urban Crows

By John C. Withey and John M. Marzluff

Have you ever walked through the Arboretum at dusk and noticed all the crows? They seem to come from everywhere, filling the tops of trees and cawing incessantly. "Where do they come from?" "What are they doing?" and "Why are there so many?" are some of the questions we have pondered as we have observed and studied crows in the Seattle area, beginning in 1997. Our findings may help you better understand these conspicuous, but often misunderstood, birds.

Breeding Season

Crows mate for life. In the Seattle area, crows begin their nesting season in March by re-establishing pair bonds and beginning to build their nests. Crows break off twigs to construct their nests high in either coniferous or deciduous trees; usually, nests are difficult to spot from the ground.

In urban areas they may also use the sides of buildings. For the past three years one pair on the University of Washington campus has nested on a window ledge on the side of the Suzzallo Library and produced two young each year. Crows usually lay four to five eggs and, once all eggs have been laid, incubate them for 18 days. During this time the male brings the female food as she sits on the eggs. When the chicks hatch, both parents feed the nestlings for the next four weeks, while the female continues to "brood," sitting on the nest to protect the nestlings from the elements. Sometimes the parents have helpers—nearly always young from the previous year—that feed nestlings and help defend the nest.

The nestlings start to stretch their wings and sit up on the edge of the nest when they are about four weeks old. When they fledge they clamor about the branches, continuing to beg from and be fed by their parents. Sometimes the fledgling crows try to fly before they have developed enough wing strength and end up on the ground. The parents become very aggressive toward perceived threats and will scold and fly at passers-by while continuing to feed the fledglings. Eventually the fledglings develop the ability to fly and continue to beg but also learn to forage on their own.

In general, 50 to 75 percent of crow nests are successful; that is, at least one fledgling leaves the nest. Predation by hawks, raccoons, or other predators is a common cause of nest failure, but parents will attempt to build another nest if it is not too late in the year. After leaving the nest, the first year of life is the most vulnerable time for a crow, when there is a 50 percent probability of dying. Studies of survivorship in different areas have found that 80 to 95 percent of adult crows survive each year, resulting in an expected life span of about 20 years.

Crow Populations in Seattle

Crow populations increased in the western United States between 1961 and 1990, and

Banded crow at the Woodland Park Zoo. All banded crows have three colored bands and a numbered aluminum Fish & Wildlife Service band. This crow's left leg has an orange band over the aluminum band, and its right leg has an orange band over a white band. This combination of colors is unique and allows us to identify the individual crow; if you see a banded crow and can record the combination of bands (top left/bottom left, top right/bottom right) please fill out a reporting form by following the link from http://courses.washington.edu/vseminar/main.htm or e-mail crow@u.washington.edu. Photo by Jim Rosso.

rates of increase were greater in urban areas than in other locations. Seattle is no exception: based on the Seattle Audubon Society's annual Christmas Bird Count (CBC), crows have increased by 9 percent per year over the last 30 years. However, the source of this population increase is under question. To determine if the reproductive rates of Seattle crows are high enough to cause a large increase in population, we have monitored crow nests at a variety of sites in the Puget Sound area for the last four years. In addition, nearly 400 crows have been captured and banded with unique combinations of colored leg bands so that individuals can be identified when resighted.

Ours and other studies show that crows have relatively low mortality in urbanized areas. However, reproductive success is lower,

FORAGING CROWS

Crow populations are increasing rapidly in urbanizing regions of the United States. One reason for these increases is the crows' ability to use human refuse. For example, here a crow quickly grabs a French fry from a discarded fast food bag. Within moments, the crow is joined by a small flock which rapidly consumes all the leftovers in the bag. Such foods, while seemingly minimal, are important to crows because they are consistently available. This availability, along with reduced predation and reduced human persecution, likely increase crow survival and contribute to the growth of urban crow populations. Photo by John M. Marzluff.

and breeding territories smaller, where more urbanization has occurred. In the Seattle area we find a seemingly contradictory pattern: urban populations of crows are increasing, but reproduction is noticeably poorer in the city than in outlying areas and is not sufficient to explain the observed population growth. Crows breeding in urban Seattle successfully produce just enough young during their lives to replace themselves.

One potential explanation for the increase in crows is that crows from the more productive suburban and rural areas move into Seattle during the winter and contribute to the CBC counts. We are currently testing this explanation in two ways: conducting a monthly CBC-style count of crows in Seattle, and tracking the movements of radio-tagged crows caught last summer as fledglings in our study sites around the region. Although we do not yet have a full year of survey data to discuss, it appears that the number of crows in Seattle may not actually change seasonally, at least not dramatically. The slight drop in counted crows during the breeding season is likely explained by large numbers of difficult-to-see incubating females.

Our radio-tracking results show some evidence of young crows moving towards more urbanized areas if they disperse away from their nests at all. We attached radio-transmitters to 30 fledgling crows. Of the 24 crows that we were able to relocate, to date nine have died, eight are found regularly in their natal areas, and seven have dispersed more than five miles away from where they were born. These dispersers include three crows that moved from suburban or rural sites to more urban areas, foraging with groups of other young crows. These three dispersers have been found at roosts inside the Seattle CBC area, although not necessarily on the day of the actual Christmas Bird Count.

So where do the crows seen in the Arboretum come from? They have likely been spending their time in Seattle; although some of them may have flown in from suburban or rural areas, most were probably raised in the city. Some crows build nests in the Arboretum and raise their young there, but that cannot account for the large numbers seen at dusk. To understand what they are doing and why are there so many, we need to consider their nighttime roosting behavior.

Roosting Behavior

Crows may spend the night together in specific areas known as communal roosts. This behavior is especially obvious during the winter but less common during the breeding season when adults spend the night on their territories. During the fall and winter, most individuals fly towards their roost a few hours before dark, stopping along the way in "pre-roosting" areas to gather with other crows. The function of pre-roosting and roosting is not well understood, but based on studies in other related crows and ravens, we can suggest these possible benefits: 1) the risk of predation is lower for crows roosting in large groups compared to smaller groups; 2) crows share information about food resources, resulting in larger groups being able to track variable food resources better than smaller groups; 3) the social interaction opportunities allow younger crows to learn from adults and eventually to find mates. Communal roosting in crows likely

FINDING THE CROWS

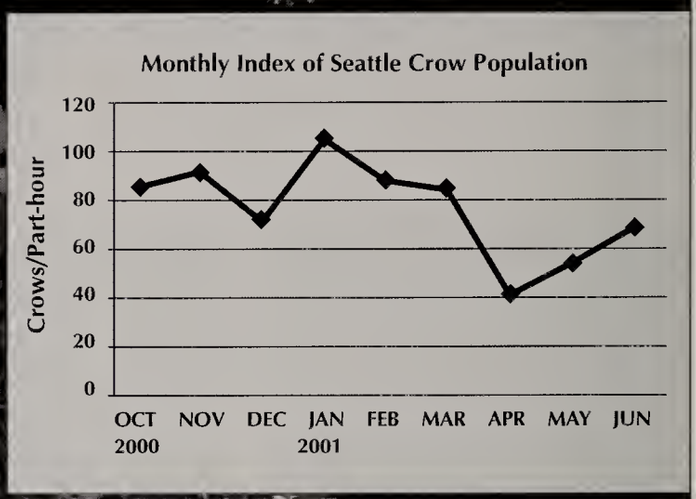
An early evening walk to Foster Island will acquaint curious visitors with the large flocks of crows choosing to roost there at night. To reach Foster Island, a designated wildlife sanctuary at the north end of the Arboretum, leave the Graham Visitors Center and head north toward Duck Bay. Cross the road and head east along the water's edge. After walking over a small wooden bridge, you are on Foster Island.

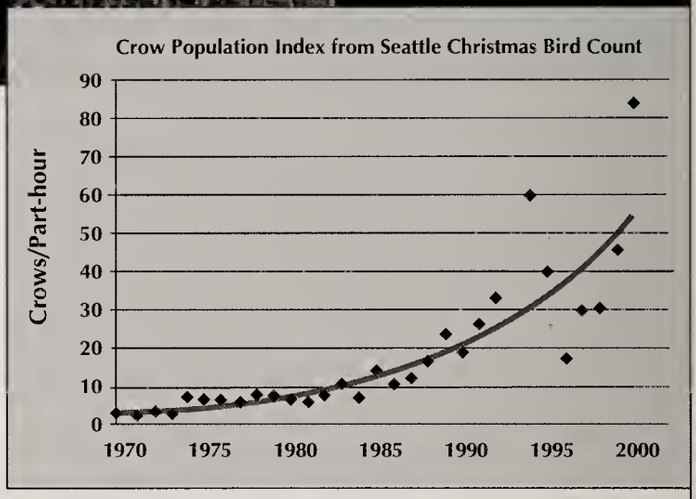
Before 1917, when the Montlake Cut was opened and the level of Lake Washington dropped, Foster Island was reached by boat. Competing legends suggest that it was named for a prominent Seattle citizen or perhaps a trapper of the late nineteenth century; some even speculate that it was named for the operator of *The Maude Foster,* a steam vessel. Whichever story you choose to believe, Foster Island and the Waterfront Trail to the Museum of History and Industry continue to be favorites of Arboretum visitors, especially birdwatchers.

Crows flock to the Arboretum as the sun begins to set. They come in as noisy strings of 10 to more than a hundred birds. It is likely that all the crows in each string come from the same foraging or pre-roosting area in greater Seattle.

Crows initially settle into Foster Island seeking exposed lookouts in the tops of trees or along the water's edge. As wave upon wave of birds settle onto the island, the noise becomes deafening and the setting distinctly reminiscent of Alfred Hitchcock.

Finally, birds move to more sheltered trees to spend the night. Here they crowd closely together, often preening their feathers and those of their mate before tucking their bills into the feathers on their backs and falling asleep. Guidebooks including walking tours of the vegetation of Foster Island and the Waterfront Trail are available at the Visitors Center. Photos by John M. Marzluff.

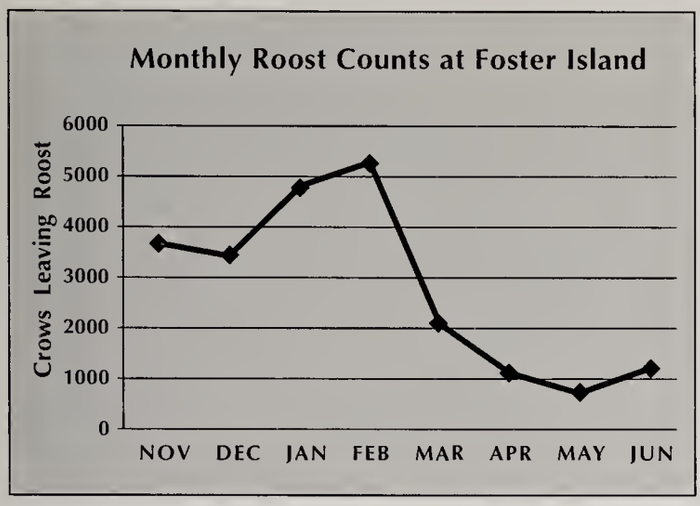




Aerial photo of roost site. The boundaries show the approximate location of crows roosting for the night. The arrows show the primary flyways of arrival and departure. From our radio-tracking we also know that crows that spend the day near St. Edwards' Park cross the lake to roost in the Arboretum. Magnuson Park is used for pre-roosting by these crows: after flying across the lake they congregate in the trees and on the ground at Sand Point before flying en masse south to Foster Island. Photo courtesy of the US Geological Survey.

Seattle Crow Survey. University of Washington researchers, Seattle Audubon Society members, and volunteers are counting crows each month. We use the same index of abundance as the Christmas Bird Count (crows/party-hour). We found high crow abundance consistent with the Seattle CBC results from October 2000 through March 2001. In April the abundance index dropped by about half, which coincided with the incubation period of most active nests in Seattle. During the last two months the index has risen back towards fall/winter levels. For more information visit http://courses.washington.edu/vseminar/survey.htm.

Population trend in Seattle crows. With some variation, the trend has been to find increasing numbers of crows in the Seattle Christmas Bird Count area. The number of people and the time spent counting birds varies each year, so instead of the total number of crows counted, we use an index of crow abundance based on the "party-hours," or time spent counting. Data from the Seattle Audubon Society.



Monthly Roost Count.
Roost counts were high during the winter, and then dropped off sharply in March. This correlated with the initiation of the breeding season, when breeding adults are more likely to stay on their territories than fly to the roost. However, there are always some crows that come in to roost during the summer. These include one yearling crow radio-tagged last summer that spends its days on the north side of the UW campus.

is maintained primarily because of reduced predation and increased social interactions, for in urban settings, food resources are spatially and temporally consistent.

Protection from predators is especially important for crows and explains one of their most notorious behaviors. Many raptors (e.g. bald eagles, great-horned and barred owls, and red-tailed hawks) eat crows, even in Seattle. Large groups of crows may spot predators more quickly, thwart their attacks more successfully, or drive them off more effectively than small groups. The tenacity of crows' driving off potential predators is often seen in Seattle as small bands of crows chase and dive at "seemingly helpless" owls, eagles, and hawks.

At the north end of the Arboretum is one of the largest crow roosts in the Puget Sound area. During the winter thousands of crows make their way to the trees on and around Foster Island from as far as seven miles away. The exact number of crows using the roost is difficult to determine because so many leave or arrive at the same time. During the Christmas Bird Count in December 2000, over 10,000 crows were counted leaving the roost. A separate count performed each month has not yielded such high numbers but is conducted from the same location each time and can be used as an index of roost numbers.

Crows may also fly to other roosts, depending on where they forage during the day. Some of our radio-tagged crows have moved north from the Seattle area to forage in Edmonds. These crows roost to the north of Mountlake Terrace, in Brier. Other crows from nests in Kirkland do not cross the lake to roost but fly south to the Mercer Slough area near the Newport Marina. Other large roosts in the area include one near Southcenter Mall and one south of Snohomish. All of these roosts are located on or near lakes or streams. Close to all of these roosts you will find large congregations of crows pre-roosting and flying towards the roost where most of them spend the night perched in deciduous trees.

Undoubtedly you will now notice groups of crows flying to or from the roost, and perhaps find evidence of breeding crows in your neighborhood. Since their population is increasing, it is difficult to ignore them in urban areas across the region. Crows have found a home with us.

John Marzluff, Associate Professor of Wildlife Science in the College of Forest Resources at the University of Washington, currently directs graduate students studying urban ecology, wildlife-habitat relationships and conservation of rare and endangered birds.

John Withey is a graduate student working with Marzluff to better understand the population regulation of crows in urbanizing environments.

Acer triflorum, the three-flowered maple, is rare in cultivation. From Northeast China and Korea, it is a relative of *Acer griseum* and has trifoliate leaves of red and yellow-orange in fall. It may be seen in the Arboretum at grid coordinates 26-B and 31-1E.

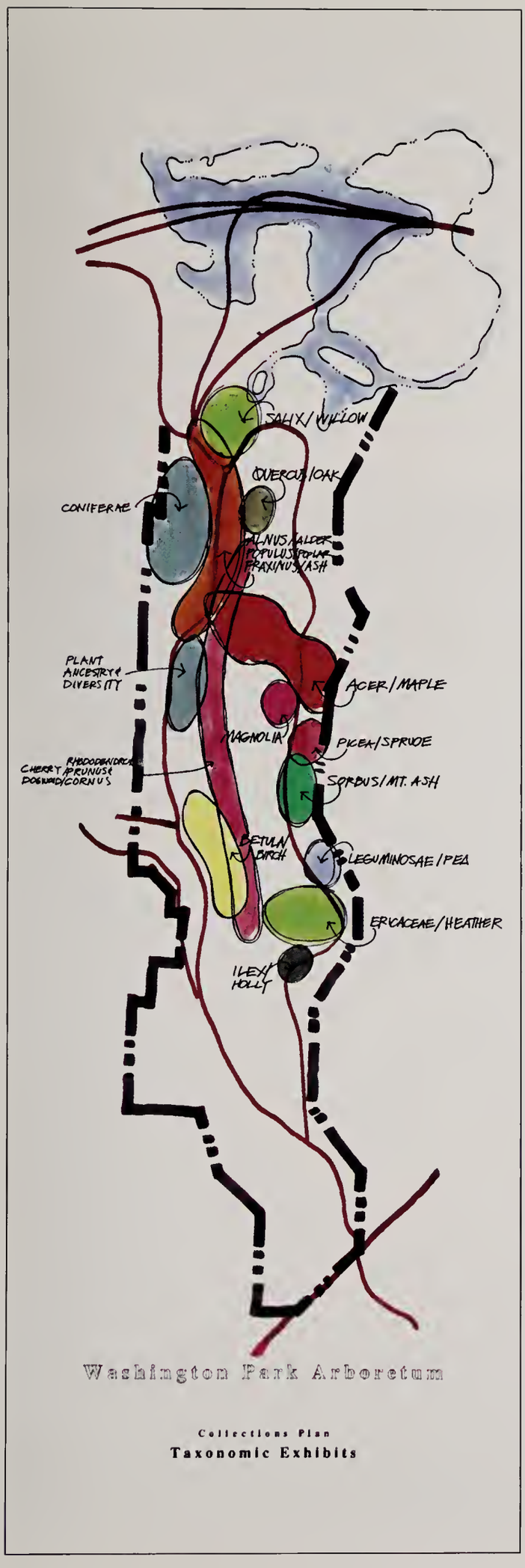
RENEWING THE WASHINGTON PARK ARBORETUM

The Taxonomic Collections: the Heart of an Arboretum

JOHN A. WOTT, DIRECTOR

An arboretum, where collections of trees and shrubs are grown for study and exhibition, is a living museum. Within the Washington Park Arboretum can be found one of the world's largest collections of temperate woody plants, approximately 10,000 specimens. The original plan for the Arboretum, designed by James Dawson in 1936, followed concepts developed by Frederick Law Olmsted, based upon the taxonomic principles of the time. However, due to the Great Depression, no funds were available for development. Eventually, Depression era programs brought hundreds of men and horses to develop areas for planting, not always exactly as Dawson had envisioned.

During the 1950s, '60s and '70s, the collections of the Arboretum were extraordinarily expanded by the work and intuition of Brian O. Mulligan, Director, and Joseph A. Witt, Curator. With their many contacts around the world, both personally and through the Index Seminum seed exchange, they were able to procure plants from climates similar to that of western Washington. This fulfilled the



original Arboretum mission statement: to exhibit plants that could grow in the Pacific Northwest.

Early in the latest master planning process, the staff produced comparison studies between our collections and those of other accessioned gardens. Not only did we find that our total numbers brought us to second or third largest on the North American continent, but that we also had among the largest collections of Pinus (pines), *Acer palmatum* (Japanese Maples), *Quercus* (oaks), *Ilex* (hollies), *Magnolia* (magnolias), and *Acer* (maples). However, the status of individual plant care was often woefully lacking.

From the very first edition of the master plan, *A Greenprint for the Future*, one of the primary goals has been the expansion and renovation of the collections. Over time, visitors will see the current, uninterrupted, taxonomic reference arrangement changed to one that is more thematic and more enjoyable.

Originally, the selection, location and labeling of plant collections were based strictly on scientific principles, and they were often placed in rows or in close proximity. Even 20 years ago, when we first decided to label all plants with both common and scientific names, the decision was accompanied by much heated discussion! Today, the general public is our largest audience, and the Arboretum, which is located in an open, public park, is even more frequently enjoyed by casual visitors.

Recent Improvements

Over the last decade, while working to complete the master plan, we have had to gaze into the future far enough to develop projects that would fit into the broader community's long-term vision.

Within the *Sorbus* (mountain ash) collection, some of the trees were moved so that there was a taxonomic pattern (fine textured to whole leaves), and the entire area was

given a much more pleasant park-like atmosphere. A meandering trail provided for a pleasant walk at all times of the year, and recently added drainage has greatly improved the planting site.

The renovation of the Japanese maple collection in the Woodland Garden was also a comprehensive effort. In our early work, ponds were cleaned and restored, over-story trees were thinned, and pathways were widened. Much attention was given to the verification, care and maintenance of each tree, and new collection plants were added.

During the last few years, priority was given to the collection of magnolias, to the Pinetum, and to the renovation of the Puget Sound Rhododendron Hybrid Garden. All five of these areas are increasingly visited, both by those who want a pleasant walk and by individuals interested in studying the Arboretum's collections.

Future Collection Renewal

The accompanying map, developed during the master planning process, schematically

THE MASTER PLAN:

Taxonomic Exhibits

Ultimately, we plan to acquire new plants in most genera of most botanical families and plant them where they will grow best. Sometimes that will be in landscape/horticultural or eco-geographic exhibits. These collection renovations will be discussed more specifically in later issues of the *Bulletin*. The following list of taxonomic clusters (as depicted on the map, page 13) includes those to be given a comprehensive collection location. Some of these groups may indeed comprise a selection of taxa that grow together and that support interpretive messages, such as morphological variation or geographic range.

***Acer*/maple**

The plan calls for a bold new maple exhibit on the southwestern slope of the Woodland Garden Meadow (part of the old nursery). Currently, maples are planted throughout the Arboretum.

***Alnus*/alder, *Populus*/poplar, *Fraxinus*/ash**

Groupings of Pacific Northwest native species in these genera will form the northern part of the moist valley bottom along the west side of Lake Washington Boulevard. As visitors walk to the south, they will also see species from outside the region.

***Betula*/birch**

Birch also like moisture and will be exhibited along the west side of the renovated area now know as the "flats." It is hoped that some of the original small water features can be restored here.

***Ericaceae*/heath**

This large family includes great diversity. Over time, many will be located as a collection of trees and shrubs in Rhodododron Glen, a site that seems most suitable for their needs.

indicates where major collections will be located. Much of this core-collection expansion will take place within the existing collection areas through thinning overstocked stands, removing unhealthy or undocumented specimens, or replacing existing, poorly functioning exhibits.

Arboretum visitors sometimes worry that an entire area will be "clearcut" and then planting decisions will be made. But before any collection renovation takes place, there will be thorough analysis of the site and current specimens, accessioned and native. It is only then that changes can begin. As we review each collection, we will re-propagate and relocate some plants. Worthy plants will be left in their current locations. In some instances, finding a source of seed and then growing the plant to a suitable size may take several years. It will take patience, but ultimately, the Arboretum will be both renewed and preserved. ~

John A. Wott

John A.Wott, Director,
Washington Park Arboretum

***Ilex*/holly**

Our holly collection is well known for its remarkable number of species. We are hoping to have it designated a North American Plant Collections Consortium collection by the American Association of Botanical Gardens and Arboreta. It will remain essentially in the same location but will have a more pleasing design and the addition of companion plants for year-round enjoyment.

***Leguminosae*/legumes**

The current legume exhibit is on the west side of Arboretum Drive about midway through the Arboretum. It includes some outstanding specimens, but new plants will emphasize the diversity and economic value of this world-wide family. Specimens with showy flowers also will be added.

***Quercus*/oak**

Currently the Arboretum's oaks are primarily located in the area west of the Graham Visitors Center in a very crowded site. Many are deformed and almost worthless as specimens. We intend to intensively study the collection, and decide which species we need. Since most oaks require considerable space, we will develop a diverse and wide-ranging geographic collection east of the Wilcox Bridge. Others will be added elsewhere.

***Salix*/willow**

Willows are often forgotten members of the tree family, but there are many to display. The native shrubby willows are ideal for the Duck Bay shorelines. Others will be added nearby.

Other Taxonomic Clusters

Among other collections to be renovated are *Cornus*/dogwood; *Prunus*/cherry, plum, etc.; *Berberis*/barberry;

Hamamelidaceae/witch-hazel family; Caprifoliaceae/honeysuckle family; *Camellia; Stewartia; Wisteria;* and the Puget Sound rhododendron collection.

PHOTO BY PAMELA GENERAUX

The silver foliage of *Hebe pimeleoides* 'Quicksilver' is paired here with the pink blooms of an ice plant (*Delosperma* sp., in the foreground), *Spiraea japonica* 'Magic Carpet' (left), and in the background, the upright forms of the bronze-green *Phormium* 'Jack Spratt' and an upright rosemary.

Searching for Sun Lovers?

BY ELEANOR THIENES

If you weren't already thoroughly convinced, this past summer's warmth and drought probably did the trick: Yes, we really do receive enough sunshine in Western Washington to justify seeking out plants that grow well in the sun.

In searching for sun lovers for my home garden, one of my favorite sources of inspiration is the Arboretum's New Zealand Garden. Designed to mimic visually a sub-alpine, tussock grassland, even including a small, gravel mountain "pass" between large boulders, this demonstration garden's goal is to teach us more about the hardiness and potential of New Zealand plants. At this point well established, this high country garden was dedicated in 1993, after ten years of study and planning.

Among my favorite plants in the New Zealand Garden are the olearias: *Olearia nummulariifolia*, the hard-leaved tree daisy, and *Olearia ilicifolia*, New Zealand holly. *Olearia nummulariifolia* forms a five-foot, rounded shrub that is covered in fragrant, white "daisies" in summer. To me, *O. ilicifolia* is truly elegant; its gray-green, wavy, sharply pointed leaves, very like holly, have black stems. It, too, sports large corymbs of tiny, fragrant, white flowers.

Among the plants that have done well in my sunny garden are the hebes. The largest genus of plants in New Zealand, hebes number about 80 species. The New Zealand Garden

PHOTO BY PAMELA GENERAUX

A variety of hebes, including *Hebe pinguifolia* 'Pagei' and *H. cupressoides,* grow well under a 50-year-old mugo pine near the front door.

has a number of hebe species, among them *Hebe canterburiensis* and *H. amplexicaulis,* which are often available for purchase in the Arboretum's Pat Calvert Greenhouse. *Hebe canterburiensis* has dark green leaves; *H. amplexicaulis* is more gray-green. Both grow low to the ground and display white flowers in summer. They, like all hebes, are borderline in hardiness in Western Washington and need good drainage.

Two standouts, both in the New Zealand Garden, and in my own, are *H.* 'White Gem' and *H.* 'Quicksilver.' 'White Gem' is more open and shrub-like than other hebes. And it is covered for weeks in summer by racemes of white flowers. 'Quicksilver' is one of the ground-hugging group. Its small, silvery leaves are edged with a filigree of black, and it has pale blue flowers.

In my garden, the semi-prostrate *H. pinguifolia* 'Pagei' spreads nicely without

becoming aggressive and leaves enough room for the bright green leaves of *Potentilla eriocarpa* to move through the area, forming a ground cover. 'Pagei' has leathery, blue-green leaves and white flowers. Nearby, the evergreen *Alchemilla ellenbeckii* is similarly mat-forming; a dwarf spruce *Picea abies* 'Echiniformis' provides modest height for the composition.

Olearia ilicifolia with its spiny, gray green leaves can be found in the New Zealand Garden.

A Sunny Sidewalk

Gardening along a sunny sidewalk can be especially challenging. Hebes again are helpful and attractive; several that will do well in this situation include *H. glaucophylla*, with gray-green leaves and pale lilac flowers, and *H.* 'Nicola's Blush.' One that looks surprisingly like a cypress and can grow two feet tall is *H. cupressoides* 'Nana.' Its scaly, mid-green foliage is very different from that of other hebes.

Also along the sidewalk I grow a rhododendron of the 'Rêve Rose' group. Not only was it recommended as a good sidewalk rhododendron, but it was said to be "dog proof" as well. And it is! It has a low growth habit, and its medium-sized, rounded leaves cascade to the sidewalk providing a nice texture change, and complementing the smaller-leafed hebes, sedums and an evergreen lingonberry (*Vaccinium vitis-idaea*) in the background. For height and a little shade in this sidewalk garden, I have enjoyed the strawberry tree (*Arbutus unedo*) and our native hazel (*Corylus cornuta*), which can be kept trimmed up a bit for neighbors taking a walk.

The surprise of added color falls to the sedge relative, *Uncinia rubra* which, along with lemon thyme (*Thymus* x *citriodorus*) also loves the sun. The uncinia's small reddish leaves stay good looking most of the year and contrast well with the narrower, golden-orange leaves of *Carex testacea*, a grass which will spread slowly and cooperatively down a bank.

A Brick Path in Sunshine

A gentle creeper which can do well in partial shade, as well as along the edge of a brick path in the sun, is *Alchemilla alpina*. It has small silver-edged leaves and never seems to become a pest as it slowly seeds itself and snuggles up to a tiny, bronze-leafed, hardy geranium with small white flowers and a long name: *Geranium sessiliflorum* subsp. *novae-zelandiae* 'Nigricans;' it loves to grow between tight pathway bricks and will even occasionally move into the edge of a damper area. Tiny alpine strawberries (*Fraise du Bois*) also seem tolerant of both sun and shade. Finding a few along the path is always a delicious surprise.

A Hot, Sunny Challenge

Always a challenge is a planting area along a concrete driveway. Our driveway curves, which makes it a bit more attractive, but also easier for people occasionally to drive into the planting areas. This is not the place for a most highly prized plant! Once again, a New Zealand plant has come to our aid. The primary ground cover along our driveway is the New Zealand native *Acaena microphylla*. Sprinkled with a few chives, the acaena runs along under *Rosa* x *odorata* 'Mutabilis' which even provides a few blossoms throughout the winter. Low growing rhododendrons lead up to *Acer palmatum* 'Okushimo,' doing fine in the sun. A stretch of grasses near the end of the drive seems to like this environment too. They include *Pennisetum alopecuroides*, a nine foot run of Japanese blood grass (*Imperata cylindrica*), and, set back a bit, *Miscanthus sinensis*,

giving height to the area. With the sun shining through them, they are a shimmering mirage.

At the sidewalk corner, hair grass (*Deschampsia caespitosa*) and a thyme which just appeared, perhaps on a dog's foot, and decided to stay, make a nice ground cover, growing around tufts of dwarf dianthus and up to a specimen *Viburnum propinquum* which always looks fresh. *Cistus incanus* with its furry, down-covered gray leaves joins in well. *Epilobium canum* (syn. *Zauschneria californica*) does nicely near concrete too. From the California coast, it has tubular scarlet flowers with woody stems near the plant's base.

Above the sidewalk, on the high side of a retaining wall, is an 11-year-old *Arctostaphylos canescens*. Now ten and a half feet tall, it came back from ground level after being blasted by some dangerously low temperatures shortly after planting; it is now a rather open plant with small white flowers every spring. It is also a California native and has never received garden watering. Our native Oregon grape (*Mahonia aquifolium*) also only receives water from rainfall and continues to thrive. A delicious big surprise was noticing our tiny, native blackberry (*Rubus ursinus*) appear one year, draping its branches over the wall. We were amazed that this could happen in the middle of the city.

But there is a problem with finding our garden so full of plants that enjoy sunny locations. I still haven't figured out where to include an *Olearia ilicifolia*, the dark-stemmed "holly" that looks so tempting in the New Zealand Garden. And to tell you the truth, I would also like to include a few *Aciphylla aurea* plants. Also from New Zealand, they look like small, very sharp phormiums or yuccas. They, too, should be "dog proof." The New Zealand Garden can be inspiring in all sorts of ways! ~

Eleanor Thienes, a Seattle landscape designer, is a member of the Bulletin's Editorial Board. She can be reached at (206) 722-7126.

Oh, Joy!

Over and over again, you have read in the* Bulletin, *"Photos by Joy Spurr." An Arboretum Foundation member for over 45 years, Joy began taking photographs in the Arboretum in 1986, when the Graham Visitors Center was built; she is probably taking some today. On these two pages is a collection of Joy's autumn images you may not have seen before. This tribute to Joy was written by former* Bulletin *Editor Jan Silver.

It would take the Hubble telescope's cameras to capture all of Joy Spurr's stellar photographic gifts to Washington Park Arboretum.

Joy is a balancing act—a professional photographer and professional volunteer. She travels throughout the world to record wildlife and wildscapes on film, and to portray great plants and gardens. Her devotion to travel is only matched by photo

LEFT: *Fagus sylvatica* 'Asplenifolia' (Arboretum grid coordinates 41-1E) is a fern-textured form of European beech with gracefully dissected leaves.
ABOVE: *Acer palmatum* Dissectum Atropurpureum Group with its pumpkin-orange, autumn color.
BELOW: The turning leaves of *Davidia involucrata*, the dove tree, deeply veined and tooth-edged. Dove trees in the Arboretum may be found at grid coordinates 21-1E, 21-3E, and 23-2E.

Joy Spurr, with her camera in one hand and an admired form of *Euphorbia characias* subsp. *wulfenii* in the other.

archives she has created to give life to publications, displays, and presentations about the Arboretum.

Generosity of spirit and talent is not new to Joy. When I published an organic gardening magazine in the '70s, she was sympathetic to my low budget and allowed her mushroom photos on the covers. Years later, when I edited the *Bulletin*, her generosity only grew: She responded to the *Bulletin's* late-breaking (or late in being asked for) needs, even during periods of jet-lag. I asked her for a photo of an Arboretum chipmunk, a harlequin glory-bower's blue berry on magenta calyx, workers renovating ponds, and the detail of a kimono worn in the Japanese Garden. Joy readily and quickly responded, frequently from her private photo collection.

Joy continues to record strong sunlight on autumn gold leaves, magnolia buds near opening, children experiencing the Arboretum for the first time. Her work allows current and potential Arboretum users to replay a missed season or see what they can look forward to in the Arboretum's continuing cycle.

Joy Spurr's legacy to Arboretum users and future users is out of this world yet bound to the earth. We all are privileged to see through the eyes of this remarkable woman who—more than anyone—distills the transient and durable beauty of the place for generations to come. ❧

Jan Silver is a former Bulletin *Editor. She can be reached at jsilver@silverlink.net.*

Why not plant a medlar (*Mespilus germanica* 'Macrocarpa') this winter? Each brown, edible, turbinate fruit, borne in fall, is topped with an open crown. The gray-green leaves of this hardy ornamental yellow in autumn. To see for yourself, find Arboretum grid coordinates 11-3W.

WINTER PLANTING

WHAT AN OPPORTUNITY

By Robert L. Berger

"It's an outstanding specimen of the perfect tree for this location in my garden. It's growing great. I didn't have to fight the crowds to find it or rush to get it into the ground before it started new growth. Best of all, it is exactly what I wanted, and, by the way, it cost less than I expected."

These are frequent thoughts for winter gardeners.

Too often we think of planting that special tree early in the spring, when the best time to plant in the Puget Sound area is in the winter months. There are horticultural, as well as economic and aesthetic, reasons not to wait until spring to add that tree or shrub to your garden. The so-called winter planting season runs from the first soaking rains of September to a few weeks prior to initiation of spring growth.

The first task in adding that special shrub or tree to your garden is finding it. Unusual growth forms or species often can be difficult to locate. In winter, plant selection is at its peak. The "new" crop is ready to sell. Most of your competitors for really neat plants won't be looking for them until spring. Without

crowds at the nurseries, you can take your time finding a particular plant, and the best plant specimen. With inventory at its best, you will have a better chance of finding rarities, as well as unusual forms of special plants, such as espaliered trees and shrubs. In addition, nurserymen often don't re-price plants to reflect the additional year of growth until spring, giving you a better buy in winter.

Warm Winter Soil

Unless the ground is frozen or there is that rare snowfall accumulation, you can successfully plant your new treasure throughout the winter in the Pacific Northwest, west of the Cascade Mountains. Soils in this part of the Northwest remain reasonably warm during the winter, the result of mild air temperature and the geothermal soil temperature gain rising from deep within the earth's crust. This warm winter soil temperature triggers root growth, even though top growth won't begin for several months.

The winter planting advantage of increased root development will pay off during the next growing season. You will find that the balanced root-to-top ratio and greater depth of root penetration will minimize the amount of irrigation the plant will need for vigorous growth during the next year.

While root growth will soon anchor your new plant, there are occasionally winds that may dislodge and damage a newly planted tree. Provide the recommended support or anchor required for the size of the new plant. Remember to remove the artificial support before the plant adds girth late in the next summer (July/August).

Water Stress

Gardeners should remember to address two stress elements when planting in winter. Believe it or not, these stresses are associated with lack of moisture. That's right—a lack of moisture during the winter, even in

the Pacific Northwest. Because of our quasi-Mediterranean summer weather patterns, we often go into the winter with less than optimum moisture levels in the soil. The fall rains are the remedy for droughty soils. So don't plant too early, or plan to provide supplemental water. It's easy to identify the lack of soil moisture when you dig the planting hole. "Watering in" the new plant will offset the initial stress caused by drought; however, you may need to remember to irrigate again in a couple of weeks if "normal" rainfall fails to occur.

Cold Stress

The second stress is the potential for freeze damage if the newly planted tree or shrub hasn't had enough time to produce new roots, which can replace tissue moisture lost through dehydration during sub-freezing weather. In most cases deciduous plants are not hurt, but occasionally there is foliage damage to broad-leaved evergreens from freeze-drying weather. A protective film of a commercial anti-transpirant, such as *WILTPROOF*, or a thin layer of ice created by a water spray during the freezing weather will protect the plant from freeze damage due to dehydration. If the new plant has been in the ground for a month prior to a hard freeze there likely won't be any damage. A three-inch layer of bark nugget mulch or other coarse mulch will protect from soil temperature and soil moisture loss.

Wise Fertilization

The last consideration in winter planting is providing fertilizer for the new plant. At the time of planting, it's not recommended that significant levels of plant nutrients be provided. The use of compost in preparing the planting area will provide some plant food without risk of damage. Because of high levels of soluble salts, use of commercial, synthetic fertilizers at the time of planting, by either incorporation or top-dressing, will potentially damage new root growth. Spring use of synthetic fertilizers or high concentrations of organic fertilizers, when applied according to label directions, will carry the new plant through the next growing season.

Important Warning

It is important that this winter planting approach not be used for plants planted in a container or in an area that is insulated from geothermal heat gain. The air space around potted plants stops the transfer of warmth from natural soil profiles. Planting pits or other planting areas incorporated into structures also don't receive geothermal transfer of soil heat. Because soil temperature will be most strongly influenced by ambient air temperature, planting into containers or areas insulated from geothermal gain will often result in winter damage. Cold soils will delay new root development, causing plants to be more subject to freeze damage. In addition, frozen moisture in planter soils is not available to plants when dehydration is taking place.

Finally, you may want to add a permanent plant label with the plant name, planting date, and size of the plant at the time you planted it. This will provide proof that this beautiful new plant is the result of winter planting—the best time to plant in the mild areas of the Pacific Northwest. ~

Robert L. Berger is a licensed landscape architect, specializing in residential, commercial and institutional landscape designs and maintenance management programs incorporating integrated pest management (IPM) principles. He served as the Chief Landscape Architect during the design, construction, and maintenance of much of I-5 and for other major transportation projects in Washington State. He may be reached at (360) 357-6075.

The Maple

I am home again after weeks away, and along with my seeds, I return with countless memories garnered along the way. This year I traveled to Turkey and then on to Yunnan and Sichuan Provinces in China. And again I was confronted with a full monty of Maples. When I am in the field, in locations exotic or otherwise, and if I collect nothing but the memory of seeing yet another species of maple in its native haunts for the first time, at day's end I feel quite satisfied. One by one, I have become acquainted with those that comprise a genus I hold in high esteem. And through them, I have discovered a tree for all seasons; lovely blossom, handsome summer foliage, breathtaking autumn finery and stems of crisped bronze or striated silvers that shine. Ultimately, however, my affection for these trees comes from the fact that no matter where I am, and no matter how displaced I might feel, it is the maple that again takes me home.

Acer capillipes HC 970726 **z6** **d2"** **accap726** **$12.00**
For a tree of which I am so fond, it was thrilling to come upon it in the wilds of Japan in the autumn of 1997 and collect these seeds which have now matured to vibrant saplings. It is one of the finest of the stripe-barked species to be grown in partial shade, with striking striated bark and bold triangular-shaped foliage transforming to glorious shades of orange and red in autumn. Ultimately to 40 ft. over many years. *Aceraceae* Japan

Acer carpinifolium HC 970719 **z5** **d4"** **accar719** **$12.00**
It was a red letter day in the autumn of 1997 in the mountains of Honshu when I spied this maple's ripe fruit. A multi-stemmed, rounded-crowned tree with leaves the antithesis of what most people assume are "maple like". Narrow, medium-green, jagged-edged leaves appear very similar to the hornbeams, hence the specific epithet. Ultimately a 20 ft. tree, in full sun or partial shade and any average loamy soil, we find this an extraordinary species for distinctive, year-round interest. Wild collected seed. *Aceraceae* China

Acer caudatifolium DJHT 99057 **z6** **d2"** **accau057** **$12.00**
(≈*A. kawakamii*) An extremely rare maple in cultivation, with handsome, star-shaped foliage possessing five elegant lobes and superb tints of orange and red in autumn, along stems rising to 25 ft. over many years. Excellent autumn color. These are my collections from above Toroko Gorge in Taiwan in 1999, at 7500 ft. In cold sites, it is wise to plant in the protection of an overstory.
Aceraceae Taiwan

Acer circinatum 'Little Gem' **z6** **d4"** **accirli** **$12.00**
From a witch's broom in Stanley Park, Vancouver, B.C., comes this charming dwarf version of our Vine Maple, which quickly achieves a dense, red, twiggy rounded mound 4 ft. x 4 ft., then, essentially, stops growing. As effective in winter from brilliant effects of bark as in autumn with good tones of reds and yellows. Full sun or part shade in any soil. *Aceraceae* Garden origin

Acer circinatum 'Monroe' **z5** **4"** **accirmo** **$12.00**
Found in the wilds of Oregon, this is one of only two ine Maple that possesses cut foliage, this resembling *Acer japonicum* 'Aconitifolium', th smaller leaves. A striking, textural small tree, to 15 ft. or slightly more over a l umn tints. Full sun or partial shade in any well-drained or moderately r Garden origin

Acer coriaceifolium .00
How exciting it was for us, indeed, to receive an knowledge, been brought into cultivation in foliage on a tall shrub or small tree to 20 ft., partial shade in colder areas. Exceedingly r

Acer davidii DJHC 179
As this snake-bark species has long been the wilds of Yunnan; this collection fror unlobed leaves are carried along strik effect much longer than many close Plant as a small, rounded understo sun. Any well-drained soil.

Acer davidii EDHCH 97263
For the collector, or for those w represent our Eric Hammond's c village of Yao-gi, approximate astery that once housed this specimen. As loathe as I am able difference from my ov

Reading by Firelight

By Brian Thompson

Cozy times lie ahead. The long evenings of fall and winter beckon the armchair gardener and the fireside naturalist to move away from an empirical, in-the-dirt mode to a more imaginative and maybe even more adventuresome way of thinking.

Books are often the catalyst for these adventures. In what hopes to become a regular fall feature of this section, we will focus on recent publications by Pacific Northwest authors as well as books about gardening in this region.

Artists in Their Gardens

Artists in Their Gardens is the consummate fireside book. In an intimate conversation with 12 Pacific Northwest artists who also happen to be gardeners, you share their sometimes kooky, certainly nonconformist views on life as expressed in the backyard. Read a chapter, then reflect on your own perceptions of gardening. I found all sorts of new ideas about my own garden coming to mind, not consciously copied, but stirred from my own imagination by what I read and saw.

This is a glimpse of personal passion. The artists, with one exception, do their primary work in another art form. Here we read and see how they express their artistic nature in a medium uncompromised by the demands of producing a living. These gardens are not for sale.

This book is a wonderful collaboration. Authors Valerie Easton and David Laskin and photographer Allan Mandell weave a seamless presentation that always asks the next question on your mind, and allows us all a casual, drop-in visit to some truly distinctive yet charming folks.

Our hosts are very much part of this collaboration as they share their uniquely quirky or wise thoughts about gardening. Wildlife artist Robert Bateman suggests, "The idea in my garden is to twinkle your way through and explore and be a little confused." Sculptor George Little adds, "The garden is its own entity: it tells you what to do." For

ceramicist Anne Hirondelle, it is "an antidote to too much clay."

Artists does not neglect our more systematic side. Each interview includes "The Artist's Eye," a pragmatic discussion of the main attributes of that artist's style and how these ideas may be incorporated into other settings. It's also a lot of fun! Where else can you see a picture of a huge pyramid of multi-colored bowling balls? Keep this book handy, to read, browse or just ponder whenever the well of inspiration has gone dry.

Lewisia

Lewisia is not a genus I've grown much. In fact, my garden has only one struggling *L. cotyledon* hybrid. But that didn't detract from my enjoyment of Roy (B. LeRoy) Davidson's work on the genus. Enthusiastic and skillful writing makes almost any topic a treat to read about, and this combination monograph, field guide, hands-on gardening manual, and tale of natural and human history excels at both.

Regrettably, Davidson died in late 2000, after living his life in both Idaho and Washington. Obituaries in numerous and quite varied horticultural publications make it clear that lewisias were only one facet of his interest in the plant world. These heartfelt writings also portray his ability to connect with people, and this interest in "plant people" is perhaps the most charming aspect of this book.

Those who find, bring back, preserve, record, analyze, illustrate, propagate, cultivate, hybridize, sell, exhibit, judge, fuss at, or just plain enjoy can all be found here. Davidson knew them all, and by focusing on this one small genus, has captured a microcosm of the human side of botany and horticulture. All the while, he also introduces us to a wonderful little group of plants.

Wit is pervasive. "Any healthy, vigorous plant...naturally aspires to expand its territory. Plant species that do not may be suspected of senescence," begins the section on seed dispersal. The author also succeeds as a storyteller. The description of *Lewisia longipetala* interweaves over several pages with an intriguing account of its single discovery in California in 1875, then loss and inexplicable reappearance in cultivation nearly 60 years later in England.

Like *Artists*, collaboration is an important reason this book works so well. The photographs, illustrations, comments (fore and aft) and considerable exploration assistance given by Sean Hogan and Micheal Moshier are in great evidence throughout. Both spoke at Davidson's memorial gathering this spring and shared insights from working with the author that underscore his knowledge, love and enthusiasm for his subject.

Sunset's *Western Garden Book*

Finally, an old but newly revised favorite, Sunset's *Western Garden Book*. In its various editions, this has been an essential in my 30-plus years of gardening, as it is for every West Coast gardener. Recently, when a gardening friend moved to Seattle from the

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Texas Gulf Coast, this new, 7th edition was a perfect house-warming gift, introducing the nuances of our climate, garden design and plant options. But before I wrapped it, a quick look through convinced me it was time to replace my well-worn back edition, too.

I asked editor Kathleen Norris Brenzel what excited her about this new edition and she quickly said, "All the new plants that have become available." Two thousand have found their way onto these pages.

An updated plant encyclopedia is only one of the changes in this edition. The innovative climate zones of the Sunset series have been expanded and updated based on satellite technology and a greater number of reporting stations. Locally, this tweaking finds the city of Everett now in Sunset Zone 4, a move away from the slightly warmer Zone 5 of southern and central Puget Sound. The popular plant selection guide has been expanded to reflect changing gardening styles with lists, such as "Plants for Tropical Effects" or "Trees and Shrubs for Containers."

There is perhaps no easier way to understand these changes than by comparing several different editions of the *Western Garden Book* published over the last 60 years. Brenzel's introductory essay also highlights this comparison by tracing the growth of the natural gardening movement in the West since the 1950s.

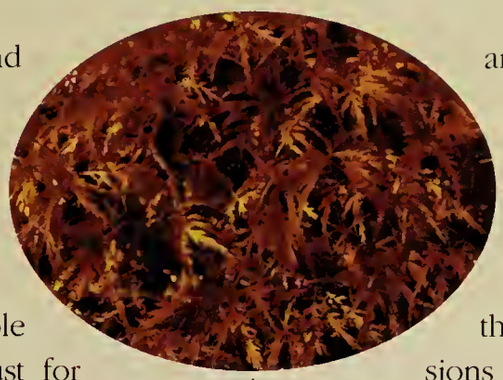
Like the other books reviewed here, the *Western Garden Book* is the result of the efforts of many. Brenzel regards it as "your book" for people in the horticulture industry, including growers, retailers and landscape designers. The contributions from this cross-section of experts are the major reason this book will be an important part of any planning you may do this winter. It will remain your companion when you move back outside next spring.

Brian Thompson is a librarian at the Elisabeth C. Miller Horticultural Library.

JAPANESE MAPLES: MOMIJI AND KAEDE

By J. D. Vertrees, Third Edition, Revised and Expanded by Peter Gregory

BY HARRY OLSEN



This revised and expanded edition of Vertrees' *Japanese Maples: Momiji and Kaede* further cements its position as the only authoritative source of descriptions of Japanese maple cultivars. It is an absolute must for anyone interested in including any of these beautiful plants in the garden. The words *Momiji* and *Kaede* in the book's title are used by the Japanese to refer to both maple species and cultivars. Most frequently, *Momiji* is applied to maples, such as *Acer palmatum* and its cultivars, which have deeply incised leaves; most other maples are termed *Kaede*.

There are significant, helpful changes in this third edition. The first thing you'll encounter after you've passed the splendid jacket and frontispiece is the attractive new font. Larger, easy to read and easy on the eye, it enhances a very agreeable design and layout.

The introductory chapters reflect a fine attention to detail in organization, alphabetizing, indexing and, in some instances, rewriting for improved clarity without compromising the original author's style or thoughts. The photographs retained in the first four chapters have been carefully cropped and increased up to six times in size with dramatically improved clarity, sharpness and color. A clearly written taxonomy of *Acer palmatum* has been included. The chapter on culture has been updated with new thoughts on mulching and important new information on pruning and the treatment of wounds. The recommended use of sprays to control aphids (originally developed for roses) is worth the price of the book. The discussions on propagation, particularly by grafting, have been organized systematically and will surely tempt more hobbyists to try this frustrating and rewarding propagation technique.

Chapter 5, "*Acer palmatum* and Its Cultivars," is the heart and soul of the book. It begins with a brief description of *A. palmatum* subspecies and offers seven practical groups for classifying the cultivars based on leaf form and tree size. Unfortunately, the very brief section on reverting was not expanded to address this disfiguring characteristic of many cultivars with variegated, contorted or linearlobum leaves.

The book then proceeds with concise descriptions of 322 *A. palmatum* cultivars including 92 not described in earlier editions. These are sequenced in alphabetical order for easy location without reference to the index, a major convenience. The group into which each cultivar falls is identified below the cultivar name. Unfortunately, photographs are provided for only 204 cultivars, including only half the cultivars described here for the first time. The photographs have been effectively cropped, are crisp and sharp and have dramatically

improved color over earlier editions. It would have been helpful to have included the month taken and location of the photographs. This information would have been a valuable addition for this group of plants that changes so dramatically with the seasons. The estimated heights of mature cultivars have always been problematic. Location and culture affect growth dramatically, and growers can only estimate the eventual height of new introductions. But with 23 years more experience since the first edition, heights have been updated on 64 cultivars, all upward with but a single exception.

Other *Acer* species from Japan and their cultivars are covered in chapter six. The same concise descriptions are accompanied by a generous number of photographs. Missing are the hardiness zones for the species. A new appendix provides brief descriptions for an additional 148 *A. palmatum* cultivars and 25 cultivars of other Japanese maples that are too new or limited in availability to allow for full description. The listing of Japanese names and their meanings has been increased fourfold over the earlier editions. An expanded guide to uses and characteristics provides helpful summary data on all 322 *A. palmatum* cultivars. A useful glossary has been added defining the botanical and horticultural terms used in the text. A general index and an index of cultivars in alphabetical order complete the book.

This revised and expanded edition of *Japanese Maples* will be a bible for nurserymen, collectors and gardeners for years to come. Peter Gregory deserves appreciation for his thorough research and the remarkable accomplishment of organizing and compiling this comprehensive revision. ~

Harry Olsen is co-owner of Foliage Gardens, a specialty hardy fern and Japanese maple mail order nursery. He has studied and propagated maples for many years and has a personal collection of over 260 cultivars.

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